

Patent claims

1. Method for operating a system according to TDMA (Time Division Multiple Access) with a multiplicity of  
5 wireless sensors and/or actuators as nodes (S.1...S.n) and a base station (BS), said system being installed in a machine or installation, such as industrial robots or an automated manufacturing or production unit, whereby cyclical TDMA data transmission blocks are transmitted  
10 and each TDMA data transmission block is composed of consecutive time slots, whereby each time slot is allocated to a specific node, characterized in that the uplink signals (UL.1...UL.n) can be transmitted from the different nodes (S.1...S.n) to the base station  
15 (BS) simultaneously on two, three or more different frequencies (f1, f2, f3), whereas the downlink signals (DL) are transmitted from the base station (BSA) to the different nodes (S.1...S.n) on only one frequency, which differs from the uplink frequencies, whereby the  
20 time slots and the different uplink frequencies of the different nodes are defined once and are thereafter retained.

2. Method according to Claim 1, characterized in that  
25 the different uplink frequencies of the different sensors and/or actuators (S.1...S.n) and the downlink frequency are defined in such a way that interferences are avoided as far as possible.

30 3. Method according to Claim 1 and/or 2, characterized in that the frequency hopping method is used.

4. System with a multiplicity of wireless sensors  
35 and/or actuators as nodes (S.1...S.n) and a base station (BS), which is installed in a machine or installation, such as industrial robots or an automated manufacturing or production unit, whereby cyclical TDMA data transmission blocks are transmitted between the

base station and the nodes and between the nodes and the base station, characterized in that the uplink signals (UL.1...UL.n) can be transmitted from the different nodes (S.1...S.n) to the base station (BS) simultaneously on two, three or more different frequencies (f1, f2, f3), whereas the downlink signals (DL) are transmitted from the base station (BSA) to the different nodes (S.1...S.n) on only one frequency, which differs from the uplink frequencies, whereby the time slots and the different uplink frequencies of the different nodes are defined once and are thereafter retained.